

PERSISTENT, BIOACCUMULATIVE, TOXIC CHEMICALS

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Title: PBTs in high places: Western US National Parks

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Persistent bioaccumulative toxic (PBT) compounds, some current use pesticides (CUPs), and other semi-volatile organic compounds (SOCs) persist in the environment, accumulate in biota, and render toxic effects in laboratory studies. Semivolatile pesticides, PCBs, and emerging contaminants such as polybrominated diphenyl ethers (PBDEs) volatilize from use areas, are transported by air currents, condense, and remain less mobile in cold, remote ecosystems. The Western Airborne Contaminant Assessment Project was developed to determine if, where, and how airborne pollutants accumulate in remote, high altitude and latitude U.S. national parks. Snow, lake water, fish, and sediment cores were collected from lake ecosystems in eight western U.S. national parks spanning a large latitude, longitude, and elevation range. Concentrations were determined for ~100 PBTs, CUPs, and SOCs. Fluxes of the contaminants in the ecosystems were evaluated, deposition records reconstructed, and various factors evaluated to understand PBT accumulation within these remote, sensitive ecosystems.